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Apolipoproteins A1, B, and other prognostic biochemical cardiovascular risk factors in patients with beta-thalassemia major.

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Abstract

OBJECTIVES: The occurrence of cardiac iron deposition is one of the late effect of iron over load which causes cardiovascular disease (CVD) in patients who are affected by beta-thalassemia major. Evaluation of some cardiovascular risk factors plays a crucial role in prediction and prevention of CVD.

SUBJECTS AND METHODS: This study consisted of 70 young adult subjects with beta-thalassemia major (beta-TM) (aged <30 years) and 71 age- and sex-matched healthy subjects as control group in the range of 20-30 years. Hematological and biochemical laboratory parameters including apolipoprotein (Apo)A1 and ApoB, oxidative stress biomarker pro-oxidant-antioxidant balance (PAB), homocysteine, serum high-sensitivity C-reactive protein (hs-CRP), and lipid profile were evaluated.

RESULTS: ApoA1, ApoB, lipid profiles, and homocysteine were significantly decreased in patients group ($P < 0.001$); however, very low-density lipoprotein and also mean corpuscular hemoglobin concentration ($P > 0.05$) were different. Some elements included ferritin ($P < 0.001$), PAB ($P < 0.001$), and ApoB/apoA1 ratio ($P < 0.05$) statistically increased in patients, whereas hs-CRP ($P > 0.05$) was not significantly different in study groups. Exception of high-density lipoprotein ($P > 0.05$), other lipid profiles, and apoB had a negative meaningful correlation with PAB ($P < 0.05$). Likewise, apoA1, apoB, apoB/A1 ratio with apoB and homocysteine showed a strong correlation ($P < 0.05$). We did not find a slight correlation between apoB/A1 ratio in the company of oxidative stress marker PAB ($r = -0.366$; $P = 0.086$). We found a statistical correlation between apoB/A1 and homocysteine ($P < 0.05$).

DISCUSSION: Higher level of some risk factors like PAB values, apoB/A1 ratio concentration, and lipid profiles is able to involve in the prognostic pathological consequences in patients with beta-thalassemia major. Even so, they contribute toward the gradual development of CVD.

KEYWORDS: Apolipoprotein; Beta-thalassemia major; Cardiovascular disease; Oxidative stress

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